

## NOTES ON SOME ECTOPARASITES FROM MAMMALS OF PARAGUAY<sup>1</sup>

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**ABSTRACT:** Ectoparasites were identified from a small collection of mammals from Paraguay. Apparently, most had not been reported previously from there. New records include 12 species of mites other than chiggers, 8 of chiggers, 1 flea, 2 sucking lice, 4 biting lice, 1 hemipteran, and 5 streblid flies.

There are few records of ectoparasites from mammals of Paraguay. Those of which we are aware are the following: Fain (1973), in his summary of information on neotropical listrophorids and chirodiscids, reported *Prolistophorus paraguayensis* Fain 1970 from *Oryzomys ratticeps*, but Fain (1979) reported no atopomelids from Paraguay. Radovsky (1967) reported *Steatonyssus joaquimi* (Fonseca), and Rudnick (1960) reported *Periglischrus iheringi* Oudemans from *Vampyrops* sp. from Paraguay. Wenzel et al. (1966) reported *Trichobius furmani* Wenzel from *Glossophaga soricina* and *Megistopoda proxima* (Séguy) from Paraguay. Most of the chiggers reported upon here have been recently described by Goff & Whitaker (1984a,b) and Goff, Whitaker and Barkley (1984).

During 1981 and 1982 Abrell, while working in Paraguay, collected ectoparasites from a small collection of mammals. No dissecting microscope was available so examination was with a magnifying glass, and few of the smaller forms could be collected. Parasites were preserved in alcohol, cleared and stained in Nesbitt's solution, mounted in Hoyer's solution, and ringed with Euparal. Specimens have been deposited in the collections of the various workers mentioned in the acknowledgments, and representative specimens of most are being deposited in the U.S. National Museum.

The purpose of this paper is to report the results of these collections.

### RESULTS AND DISCUSSION

#### MARSUPIALIA DIDELPHIDAE

##### *Didelphis albiventris* Lund

One individual was examined; it yielded 1 flea, presently unidentified, and 12 ticks, *Ixodes loricatus*.

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## EDENTATA

## DASYPODIDAE

***Chaetophractus villosus*** (Desmarest)

The one individual examined yielded 4 ticks, one adult identified as *Amblyomma pseudoconcolor*, the rest identified as *Amblyomma* sp., but likely the same.

***Euphractus sexcinctus*** (Linnaeus)

Two individuals were examined and yielded 7 sticktight fleas, *Tunga penetrans* Linnaeus, 1758; and 53 ticks, *Amblyomma* sp., at least the adults among them *A. pseudoconcolor*.

***Tolypeutes matacus*** (Desmarest)

One individual was examined; it yielded 22 ticks, *Amblyomma* sp., at least the adults among them *A. parvum*.

## MYRMECOPHAGIDAE

***Tamandua tetradactyla*** (Linnaeus)

One individual was examined; it yielded 160 mites, *Psoralgus libertus* Trouessart (Psoroptidae), and 15 larval and nymphal ticks, *Amblyomma* sp.

## PRIMATES

## CEBIDAE

***Aotus trivirgatus*** (Humboldt)

Two night monkeys were examined, but yielded only sucking lice, totaling 62, all *Aotiella aotophilus* (Ewing, 1924).

## CHIROPTERA

## MOLOSSIDAE

***Molossus molossus*** (Pallas)

Five individuals were examined; they yielded the following: *Parkosa flexilis* (Chirodiscidae), 82 individuals; and *Chiroptonyssus haematophagus* (Macronyssidae), 3 individuals. Saunders (1975) found this species in Venezuela most commonly on *Molossus*.

***Molossus temmincki*** (Burmeister)

Ten individuals were examined and yielded 20 individuals of *Chiroptonyssus venezolanus*, 3 of *C. haematophagus*, 6 of *Hesperoctenes vicinus*, and 23 individuals of the chigger *Loomisia peruviansis* (Goff, Whitaker & Barkley, 1984). *Hesperoctenes vicinus* is known only from Paraguay; its probable host is *Molossus ater* (Ueshima, 1972).

## PHYLLOSTOMIDAE

***Artibeus lituratus*** (Olfers)

The 26 individuals examined yielded the following ectoparasites:

**Chirodiscidae:** *Parkosa flexilis*: 22 on one individual; **Spinturnicidae:** 101 individuals of *Periglischrus iheringi* on 18 hosts. This parasite was very common on *Artibeus* in Venezuela also (Herrin & Tipton, 1975); **Streblidae:** *Megistopoda aranea*, 6, on 4 host individuals. The primary host is thought to be *Artibeus jamaicensis* although it is occasionally taken on *A. lituratus* (Wenzel, Tipton & Kiewlicz, 1966). **Macronyssidae:** *Chiroptonyssus venezolanus*, 10 on 5 individuals, *Macronyssoides kochi*, 1. Saunders (1975) found *M. kochi* to be common on *Artibeus jamaicensis* in Venezuela. **Uropodidae, 1:** **Chiggers:** sp. #10, 8 on 4 individuals; sp. #11, 2 on 3 individuals; **Ticks:** 2 *Ornithodoros* sp. The two chiggers appear to represent new taxa and are being studied by M. Lee Goff.

***Carollia perspicillata* (Linnaeus)**

Two individuals examined each yielded one streblid fly, *Trichobius joblingi*, a common parasite of this bat in South America (Wenzel, 1976).

***Desmodus rotundus* (E. Geoffroy)**

Two vampire bats were examined. One yielded 10 protonymphs of the macronyssid mite, *Radfordiella desmodi*, and 2 unidentified macronyssid protonymphs; the other yielded two streblid flies, *Trichobius parasiticus*, primarily a parasite of this host (Wenzel, Tipton, & Kiewicz, 1966).

***Sturnira lilium* (E. Geoffroy)**

The 6 individuals examined yielded 17 spinturnicid mites, *Periglischrus iheringi*, on 4 individuals; Streblidae: *Aspidoptera falcata*, 3 individuals, and 6 individuals of *Megistopoda proxima*. *Aspidoptera falcata* is known from *Sturnira lilium* from Venezuela (Wenzel, 1976), and *M. proxima* is known from Panama, Paraguay and Venezuela (Wenzel et. al., 1966).

**CARNIVORA**

**CANIDAE**

***Cerdocyon thous* (Linnaeus)**

Thirty-nine ticks were found on the one individual examined. Adults were identified as *Amblyomma parvum*; many nymphs and larvae of *Amblyomma* sp. were included which may have been the same species.

**PROCYONIDAE**

***Nasua nasua* (Linnaeus)**

One individual examined, which had 15 *Laelaps manguinhos*, 97 ticks, *Amblyomma* sp., of which at least the adults were *A. parvum*; 3 mallophagans *Neotrichodectes pallidus*; 3 laelapid mites, *Gigantolaelaps mattogrossensis*; and 5 macronyssid mites, *Ornithonyssus* sp.

## RODENTIA

## CAVIIDAE

***Galea musteloides* Meyen**

One individual was examined of this guinea pig. On it were found two species of biting lice: 25 individuals of *Gliricola quadrisetosus* and 3 of *Macrogryopus heteronychus*; 75 chiggers, *Paratrombicula enciscoensis*, described as a new genus, new species by Goff & Whitaker, 1984; 9 individuals of *Cavilaelaps bresslaui* (Laelapidae), and 105 ticks.

## CRICETIDAE

***Akodon nigrita* (Lichtenstein)**

Three individuals apparently of this species were examined. The specimens were originally identified as *A. lasiotus*, which does not occur in Paraguay. The only species of *Akodon* known to occur in Paraguay other than *A. varius* is *A. nigrita*; thus we assume our specimens to be of this species. Efforts to obtain the specimens from Paraguay for reexamination were unsuccessful. Results were as follows: 1 louse, *Hoplopleura* sp.; 52 chiggers, 45 individuals of *Paratrombicula enciscoensis* described as new by Goff and Whitaker (1984b), 5 of *Paraguacarus abrelli* described as new by Goff & Whitaker (1984), 1 of *Quadraseta brennani*, and 1 of *Andalgalomacarus paraguayensis*; and laelapid mites as follows: *Androlaelaps rotundus*, 23, and *Androlaelaps fahrenheitzi*, 13.

Thus the major parasites of *A. nigrita* in Paraguay are *Paratrombicula enciscoensis*, *E. rotundus*, and *A. fahrenheitzi*. *Androlaelaps fahrenheitzi* is the most widespread mite of the new world and is found on far more hosts than any other species. *Androlaelaps rotundus* varies in some characters indicated in the original description.

***Akodon varius* Thomas**

Six individuals were examined and the following forms were found: 5 lice, *Hoplopleura* sp.; 248 chiggers, *Paratrombicula enciscoensis*, 1 of each of the chiggers *Andalgalomacarus paraguayensis* and *Paraguacarus callosus*; Laelapids: *Androlaelaps rotundus*, 28; and *Androlaelaps fahrenheitzi*, 17; and 3 fleas, *Polygenis* sp.

The same three parasites are the dominant ones on this host as on *A. nigrita*: the chigger, *P. enciscoensis*, and the laelapids, *A. rotundus* and *A. fahrenheitzi*.

***Andalgalomys pearsoni* (Myers)**

Three individuals of this species were examined, but only chiggers, totalling 52 of 6 species, were found, as follows: 24 individuals of *Andalgalomacarus paraguayensis* described by Goff and Whitaker (1984b) as a new genus and new species, 12 of *Paratrombicula*

*enciscoensis*, 9 of *Paraguacarus abrelli*, 3 each of *Microtrombicula pearsoni* and *Quadrasetta brennani* both described as new by Goff & Whitaker (1984b), and 1 of *Paraguacarus callosus*.

***Calomys callosus* (Rengger)**

Only 1 individual was examined. On it were found 2 mites, near *Tyrophagus*, and 8 chiggers: 4 individuals described as a new genus and species. *Paraguacarus callosus* by Goff & Whitaker (1984a), 1 of *Paraguacarus abrelli*, 2 of *Eutrombicula batatas* (Linnaeus, 1758), and 1 unidentified chigger.

***Calomys laucha* (Olfers)**

Three individuals were examined; two species of ectoparasites were found, 20 individuals of *Laelaps mazzai* and seven chiggers, all *Paratrombicula enciscoensis*.

***Graomys griseoflavus* (Waterhouse)**

On the one individual were found 3 *Hoplopleura* sp. and 8 chiggers, *Paratrombicula enciscoensis*.

***Holochilus chacarius* Thomas**

Two individuals were examined and yielded 30 lice, *Hoplopleura contigua* Johnson, 1972; 101 ticks, *Amblyomma* sp.; 2 psoralgids, *Marsupialges misonnei*; and 2 laelapids, *Gigantolaelaps mattogrossensis*. *Marsupialges misonnei* was described from *Didelphis marsupialis* and from *Marmosa murina* from French Guiana, both marsupials. This is only the second record for this parasite so we have included it. However, we suspect it is either accidental or a contaminant on *Holochilus*.

ARTIODACTYLA

TAYASSUIDAE

***Tayassu tajacu* (Linnaeus)**

The two individuals examined yielded 60 mallophagans, *Macroglyropus dictoylis* (Macalister, 1869), all on 1 host; and 43 ticks, *Amblyomma cajeunense*.

## DISCUSSION

There are few records of ectoparasites from Paraguay, but literature is scattered and not readily available. However, the following species apparently have not previously been taken in Paraguay.

**Chiggers (Trombiculidae)**

- Andalgalomacarus paraguayensis* Goff & Whitaker, 1984b
- Eutrombicula batatas* (Linnaeus, 1758)
- Loomisia peruviansis* Goff, Whitaker & Barkley, 1983
- Microtrombicula pearsoni* Goff & Whitaker, 1984b
- Paraguacarus abrelli* Goff & Whitaker, 1984b
- Paraguacarus callosus* Goff & Whitaker, 1984a
- Paratrombicula enciscoensis* Goff & Whitaker, 1984b
- Quadrasetta brennani* Goff & Whitaker, 1984b

**Other Mites:****Chirodisциidae**

- Parkosa flexilis* (Pinichpongse, 1963)

**Laelapidae**

- Androlaelaps fahrenheitzi* (Berlese, 1911)
- Androlaelaps rotundus* Fonseca, 1935
- Cavilaelaps bresslaui* Fonseca, 1935
- Gigantolaelaps mattogrossensis* (Fonseca, 1935)
- Laelaps manguinhosii* Fonseca, 1935
- Laelaps mazzai* Fonseca, 1939

**Macronyssidae**

- Chiroptonyssus haematophagus* (Fonseca, 1935)
- C. venezolanus* (Vitzthum, 1932)
- Macronyssoides kochi* (Fonseca, 1948)
- Radfordiella desmodi* Radovsky, 1967

**Psoroptidae**

- Marsupialges misonnei* Fain, 1963
- Psoralges libertus* Trouessart, 1896

**Fleas (Siphonaptera)**

- Tunga terasma* Jordan, 1937

**Sucking Lice (Anoplura)**

- Aotiella aotophilus* (Ewing, 1924)
- Hoplopleura contigua* Johnson, 1972

**Biting Lice (Mallophaga)**

- Gliricola quadrisetosus* (Ewing, 1924)
- Macrogryopus dicotylis* (Macalister, 1869)
- Macrogryopus heteronychus* (Ewing, 1924)
- Neotrochidectes pallidus* (Piaget, 1880)

**Flies (Diptera):****Streblidae**

- Aspidoptera falcata* Wenzel, 1976
- Megistopoda aranea* (Coquillett, 1899)
- T. joblingi* Wenzel, 1966
- Trichobius parasiticus* Gervais, 1844

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